

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 11, 1974

Forwarded to:
Honorable Alexander P. Butterfield
Administrator
Federal Aviation Administration
Washington, D. C. 20591

SAFETY RECOMMENDATION(S)

A-74-56 & 57

On November 21, 1973, while en route from Grand Junction, Colorado, to Santa Fe, New Mexico, the pilot of Cessna 310C, N1819H, noticed a slight vibration and an increase in exhaust temperature. Before the pilot could complete a precautionary landing, he heard a loud noise and observed smoke and flames coming from the left engine exhaust. The pilot shut down the engine and continued the approach. After landing, the pilot and both passengers safely departed the airplane which was consumed subsequently by fire. Remedial action is needed to minimize the possibility of similar occurrences.

Investigation of this accident revealed that the in-flight fire was precipitated by the complete circumferential fracture of the No. 1 cylinder assembly, P/N626820-A2, of the left engine, Teledyne Continental Model IO-470-D. Twenty-one hours of engine operation had elapsed since the last cylinder assembly inspection was performed on this airplane in accordance with Federal Aviation Administration Airworthiness Directive 72-20-2 (Continental, Amendment 39-1522 as amended by Amendment 39-1613). The cylinder assembly inspection interval of 25 hours of operation was determined through an evaluation of service experience with the assembly, and considerations of compatability with other required aircraft inspections. The inspection interval appears to be adequate in most instances; however, as indicated by this accident, a cylinder assembly crack can develop and propagate to failure in less than 25 hours of service.

The in-flight fire which took place has called attention to the methods of powerplant fire control available for general aviation aircraft. Since current regulations do not require engine fire-detector or extinguisher systems in such aircraft, suitable emergency procedures are needed to cope with an in-flight engine fire. The owner manual for the

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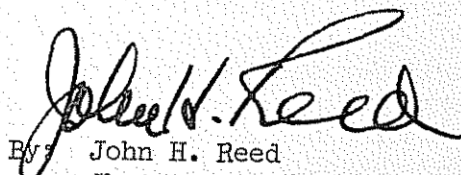
Cessna 310C and later 310 models prescribes emergency procedures for engine failure, but not for in-flight engine fire. Late model 310 owner manuals present an in-flight engine fire procedure in the "Optional Systems" section of the manual as part of the "Fire Detection and Extinguishing System" description. The seriousness of an in-flight engine fire justifies the inclusion of appropriate procedures in the "Emergency Procedures" section of the Cessna 310 owner manual. In fact, emergency procedures for in-flight engine fires should be presented in owner manuals of all general aviation aircraft.

In view of the above, the National Transportation Safety Board recommends that the Federal Aviation Administration:

1. Modify AD 72-20-2 (Continental) to reduce the 25-hour inspection interval or to require replacement of the cylinder within the next 20 hours of flight.
2. Assure that the emergency-procedure information required for each airplane by 14 CFR 23.1585(a) includes explicit procedures for "Engine/Nacelle Fire In-Flight."

Personnel from our Bureau of Aviation Safety are available if any further information or assistance is desired.

REED, Chairman, McADAMS, THAYER, AND BURGESS, Members, concurred in the above recommendations. HALEY, Member, was absent, and did not vote.


By: John H. Reed
Chairman

THESE RECOMMENDATIONS WILL BE RELEASED TO THE PUBLIC ON THE ISSUE DATE SHOWN ABOVE. NO PUBLIC DISSEMINATION OF THE CONTENTS OF THIS DOCUMENT SHOULD BE MADE PRIOR TO THAT DATE.